Shared decision-making within goal-setting in rehabilitation: a mixed methods study

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Abstract

Objectives
To assess extent of Shared Decision Making (SDM) within goal-setting, determine if there are differences between staff and patients' perceptions regarding aspects of SDM adopted and explore patient-reported factors that influenced their SDM ability.

Methods
A mixed methods approach was adopted. SDM within goal-setting meetings in two intermediate-care settings were scored using the MAPPIN'SDM questionnaire by 40 elderly patients with frailty, 24 professionals and an observer. Subsequently, semi-structured interviews were conducted with 15 patients who had scored low on their questionnaire. The questionnaire data was analysed for differences between three participant groups in various aspects of SDM and direction of disagreement. The interview data was analysed using thematic analysis approach.

Results
Questionnaire data revealed that staff adopted certain SDM competencies to a high level such as staff checking their understanding of patient views (99%).Contrarily, patients' understanding of the rehabilitation options scored the lowest (37%). Staff and patients disagreed significantly on whether patients' problems were discussed ($p=0.001$). There were significant differences between patient and observer in six aspects and between staff and observer in four aspects of SDM. The main barriers for SDM within goal-setting were limitations in communication, patients' intrinsic motivation and inadequate explanation about goal-setting and rehabilitation. The facilitators for SDM included family support, agenda-setting and staff making it explicit that they listen to their patients.

Conclusion:
These findings need to be considered during staff training in clinical practice. Further research is required to look at how SDM can be improved within practice and its benefits in healthcare.

Introduction

Within rehabilitation, the goal-setting process is suggested to be a key forum for Shared Decision Making (SDM) so that patients and professionals can collaboratively set rehabilitation goals. SDM has been suggested as essential for patient-centred care delivery [1]. The principles of SDM, as described by Charles et al [2], adapted to the goal-setting context is illustrated by the following characteristics: (1) at least two parties being involved (i.e. the patient and healthcare professional); (2) both participants contribute to the decisions made, this includes the patient outlining their preferences, both parties asking questions and evaluating the rehabilitation options; (3) information is shared between participants that is relevant to the process, purposes, outcomes and goals of rehabilitation; and (4) a decision is made collaboratively on the goals. Adoption of above principles of SDM within goal-setting has been shown to improve patient satisfaction [3, 4], motivation [5-8] and functional outcomes [4, 9]. Yet, a recent systematic review [10] found that, although patients were at times being involved in goal-setting, rarely teams adopted SDM comprehensively thereby limiting a patient-centred approach.

With the increasing shift within the UK NHS services from the acute hospital setting to the community, it is not clear how SDM is followed in community settings [10]. Additionally, studies assessing SDM often use tools that only consider SDM from a single participant's (observer, clinician or, patient) viewpoint, [11, 12]. This approach is ineffective as studies show that while staff report they have involved patients, patients report having minimal involvement in these decisions [13, 14]. Clearly, there are differences in opinions of their SDM experiences between these different groups

of stakeholders. Hence experiences of SDM need to be assessed and compared simultaneously using the same tool by the patient, clinician and an observer. Moreover, there is a need to explore factors which may impact on the SDM interaction which might have resulted in the patient feeling less involved [13,14] as currently there is limited research considering patient experiences and views [15]. Hence this study is unique in the sense of assessing perceived levels of SDM from different stakeholders' simultaneously and for understanding factors that impact the patients' SDM ability from their own viewpoint.

1.2 Research aims

(1) To measure the extent of SDM within goal-setting with elderly patients with frailty undergoing rehabilitation.
(2) To determine if there are perceived differences in aspects of SDM between staff, patients and observers in goal-setting meetings.
(3) To explore the patient-reported factors influencing their participation in SDM within goal-setting meetings.

Methodology

Design

An explanatory sequential mixed methods approach was adopted. The study involved two phases including a quantitative phase followed by a qualitative phase.

Setting

The project took place in two intermediate care rehabilitation settings within community care in a large city in the south-west of England. The first setting was an in-patient Community Rehabilitation Centre (CRC). The second setting was the patient's own home in urban parts of the same city, where rehabilitation was provided by members of the Community Rehabilitation Team (CRT). Both settings involved rehabilitation services provided by multi-disciplinary teams which included physiotherapists, occupational therapists, speech and language therapists, nurses and rehabilitation workers. Both teams received referrals for patients from hospital, other community healthcare teams and general practitioners for patients who required intensive rehabilitation. In the CRC, goal-setting took place as part of a structured meeting including the patient, their family, the physiotherapist, the occupational therapist and a rehabilitation worker. In the CRT, goal-setting was always done between the therapist and the patient during the initial therapy assessment at home. All staff involved in goal-setting from both teams had received a half day course regarding adoption of SDM during patient interaction.

Participants

Any patient referred to either team with a frailty syndrome as defined by the British Geriatric Society [16], was eligible for phase 1 of the study. Frailty syndromes included:

- *Falls* – any patient that has had a fall in the last 12 months
- *Immobility* – any patient that has had a sudden change in their mobility
- *Delirium* – any patient recently discharged from hospital after an acute episode of confusion
- *Incontinence* – any patient with a change in continence
- *Susceptibility to side effects of medication* – any patient that has recently been discharged from hospital after a side effect of a medication

Patients were excluded if they had:

(1) a severe communication impairment (those who were unable to express their views on their involvement)
(2) no mental capacity to consent and
(3) if their first language was not English since translating the questionnaire could affect its validity and reliability.

Sampling method and size

Purposive sampling was chosen with a target sample size of between 35-40 participants for the first phase. As this study is based in a community setting where teams tend to be smaller this was a realistic sample size based on yearly statistics in the setting.

If patient participants scored 0 or 1, more than once on the MAPPIN'SDM questionnaire, which indicated low involvement in SDM in goal-setting, then these patients were approached for interviews for the second phase. This sample size was justified on the concept of information power [17] since the aim for this phase was narrow and focused on the specific phenomenon of SDM in goal-setting.

Research Instruments

This study used a modified version of the MAPPIN'SDM questionnaire [18]. This is a validated questionnaire that assesses competencies relevant to SDM from perspective of patient, clinician and observer. After the questionnaire was piloted with 5 patients, the language in some questions was altered to suit the reading age of the population (supplementary file A). The Observer role for completing the questionnaire in phase one was adopted by the researcher since she had completed SDM training.

For phase two, an interview guide was used. The guide was developed from a qualitative study on patient-centeredness in goal-setting [19]. The interview guide contained 10 questions related to SDM in getting-setting, barriers, facilitators and strategies affecting SDM. Before data collection began the interview schedule was piloted within the Patient and Public Involvement Team at Bristol Community Health. Small changes were made to simplify the language in the interview guide (supplementary file B).

Procedure

Members of staff were informed about the research and approached for participation during a team meeting before starting the project. The researcher was responsible for identifying eligible patients once they were referred to either team. All participants were provided with participant information sheets along with their consent forms.

During Phase one, goal-setting meetings with patient participants were observed and SDM within these meetings were scored using the MAPPIN'SDM questionnaire [18] by patient, staff involved in the meeting and by the observer. Patients' questionnaires were then examined immediately by the researcher to identify those patients who achieved low SDM scores (sample for phase two). These low scorers were then approached for participation in the phase two interview study. Interviews lasted on average 30 minutes, all interviews were undertaken by the lead researcher (AR; a 28-year-old white female) who had received training in qualitative methods prior to data collection.

Data Analysis

The software used for data analysis was SPSS version 19. Within Phase one the frequency of responses from the questionnaire were summarised. Cross-tabulations were carried out to explore the relationship between group answers from different participant groups. Welch tests were carried out on each question of the questionnaires to find out if there were overall differences in the responses between the three groups. If a significant difference was found, Games-Howell tests were undertaken to identify between which two groups of participants the differences

existed. The level of significance for the Welch tests was set as p = 0.003 due to the Bonferroni correction (p value ÷ number of competencies).

Within Phase 2 the data collected from the interviews was transcribed and analysed using thematic analysis described by Braun and Clarke [20]. The themes were named according to those derived from a recent systematic review of patient-reported barriers to SDM [21]. Pseudonyms are used to conceal identity of individuals involved. Ethical approval for the study was granted by the North West NRES Committee (15/NW/0688).

Results

Thirteen rehabilitation workers, six physiotherapists and five occupational therapists consented to participate in the study. Length of service of staff ranged from 1-26 years. Three rehabilitation workers declined to participate because they did not like the idea of being observed. One hundred and fifty patients were referred to the teams and were screened for eligibility to participate in the study. Eighty-five patients did not meet the eligibility criteria. Twenty patients from each setting consented to take part in phase one of the research. Only 15 out of the 40 patients qualified for stage two (scored “0” or “1” more than once) and of these, nine patients consented. Common reasons for non-participation in interviews included patients not wanting to “tell tales” and “not wanting to get anyone in trouble”. Characteristics of patients are summarised in table 1.

“[insert table 1]”

Phase 1 Results

Adoption of SDM

The percentage adoption of SDM competencies based on the MAPPIN'SDM questionnaires completed by all stakeholders (patient, observer and staff) can be found in table 2. The questionnaire found that all stakeholders perceived the rehabilitation staff were compliant with most of the SDM competencies. In particular, stakeholders felt that 99% (Agree/strongly agree) of the time staff understood the patient and checked that they had understood the patient during the meeting (competency 6a and 6b). Also, 96% (Agree/strongly agree) of the time language used by staff made sense to the patient and the patient had the opportunity to ask questions (7a and 7b). However, they all perceived that competencies 3b, 4a and 4b were least adopted by staff. There was 73% disagreement for the competency 4a, which implies that advantages and disadvantages of rehabilitation were not routinely discussed. Patient understanding of advantages and disadvantages of rehabilitation (competency 4b) was disagreed on 67% of the time. Whilst 69% agreed that rehab options were discussed with patients, more than a third (37%) disagreed that patients understood these options (competency 3b).

"[insert table 2]"

Differences between groups in the MAPPIN'SDM questionnaire

The Welch tests indicated that there were significant differences between groups for questions 1a, 2b to 4b and 7b to 8b (see table 3). Staff and patients only significantly disagreed ($p = 0.001$) on Question 1a that considered whether the patient's

problems were discussed in the goal-setting meeting. Patient and observer significantly disagreed on six out of eighteen questions and staff and observer significantly disagreed on four out of eighteen questions. The direction of disagreement was not clear at this stage. Hence the Games Howell test was done on these variables and Table 3 summarises the significant differences between the groups for the nine sub questions.

"[insert table 3]"

Phase 2 Results

Four main themes emerged from the interview data including: *predisposing factors, interactional context factors, preparation for a SDM encounter and preparation for the SDM process*.

Theme 1 "Predisposing factors"

This theme highlights how internal factors, such as motivation and self-confidence, can affect a patient's participation in goal-setting. Social situation was also shown to impact on SDM within goal-setting along with the patient's past experiences of goal-setting.

Intrinsic patient factors

Patients discussed the importance of feeling motivated during rehabilitation, this motivation would stem from being invested in the agreed goals which linked to patients hopes and wishes as well as a sense of purpose about what they were

doing and were required to do. Without this intrinsic nature of motivation, participants seemed likely to disengage during meetings. George explains; *"I think as a person you have to have those 'man management' skills to motivate yourself…..one guy on the hospital ward with me just could not be bothered"*.

Another key characteristic discussed amongst patients was their perceived confidence. Some patients mentioned that they did not feel confident to speak up and give their opinion during GSMs possibly due to their condition, age, personality and perceived level of knowledge. Consequently, this would hinder participating in SDM or even set goals for themselves. When asked if there was anything she was unable to discuss in the GSM Victoria reported *"I am not very confident at doing things by myself".* Victoria did not actively engage in setting her goals and therefore her daughter in-law set goals with the CRC.

Patient's social situation

Patients often mentioned their social situation as a facilitator to participating in goal-setting. Those patients with close family often asked for their relatives to be present at the meeting. Jackie reported *"I am glad they let Mike in because that helped…..my son makes me feel relaxed"*. As well as creating a calm environment, patients also wanted family present to encourage them to speak up. Patients talked about their family being a motivator, reminding them what they could achieve and the need to set goals.

Although a close supportive family appeared to be identified as a facilitator that is not to say that living alone was a barrier to participation. Patients who had no family

reported that they were used to making decisions in life and were keen to set goals. They felt motivated to get involved and consequently were engaged during discussions. *"I know I will get there……I just want to get home….I will be on my own therefore I need to be able to do things for myself"* (Hayley).

Past experiences of goal-setting

Two participants talked about aspects of their lives (e.g. participation in sport and social groups) that had prepared them for the goal-setting encounter. One participant's past identity as an athlete meant that he was used to setting goals and had strong motivation to achieve these. *"It is easy to talk about goals……you need goals…..it's not good you saying well we will just come back next week and give you exercises. You have to have something to aim for"* (George).

Theme 2 "Interactional context factors and the impact on experiences of patients"

This theme describes problems with breakdown in communication during the staff-patient interaction around goal-setting. This could lead to patients struggling to follow the meeting and subsequently was responsible for some patients not perceiving that they had actively and positively participated in goal-setting. Certain patients also discussed a paternalistic approach by hospital staff; again this did not support the ethos of SDM and these patients felt this subsequently had a negative impact on their well-being.

Communication breakdown

During interview Victoria and Betty reported that they struggled to follow the GSM which led them to forget topics discussed afterwards. Reasons for not following the meeting included, terminology used by staff and staff not checking patient's understanding Victoria explains; *"I did not follow everything in the meeting…..I am aware they talked about goals but I did not really understand".* Interestingly in the questionnaire completed by staff following this GSM, they had reported that they felt Victoria was aware of her goals and had checked she understood. However, Victoria had stated in her questionnaire that she was not clear on her goals. These differences in response clearly demonstrate a problem with communication delivery because the staff felt the patient had understood everything discussed however the patient felt otherwise.

On the contrary, George felt able to participate and discuss his goals because staff elicited his preferences and showed they were listening. *"I was able to tell the guy what I struggled with [getting in/out shower and walking outside] and what I needed and he listened"*. The importance of staff showing to patients that they are listening was highlighted by three of the participants interviewed.

Relational aspects

A proportion of patients discussed their goal-setting experiences in hospital and often they described a very paternalistic approach of staff which inhibited SDM. Some patients felt disempowered because their opinions were not sought by staff, leaving them feeling their views were not valuable. Consequently, patients would not want to speak up, especially if staff were also not listening. Jackie describes her time in hospital; *"they did not really set goals with me…..when they turned up, they made*

the decision about what to do……I just did what they asked me to do and left it". Jackie felt that hospital staff were very much excluding her. Patients also felt that they were never approached by staff on their opinion or given the opportunity to ask questions. Such a paternalistic approach to their working relationship was not conducive to SDM.

Theme 3 "Preparation for the SDM encounter"

This theme is focused on the preparation needed for a patient to have the chance to get involved in SDM and this varied with the healthcare setting. Furthermore, patients' readiness to get involved or otherwise needs to be considered prior to setting up a SDM encounter.

Patients not being entitled to a choice

In hospital, a number of patients felt they were not entitled to choice when setting their goals. None of the patients reported attending a goal-setting meeting in hospital or similar experience. They therefore found it hard to find an opportunity to discuss their goals in hospital and staff continued to set goals without them. Brenda explained; *"In hospital they did not have meetings like this it was quite different…well…they want you to do what they thought"*. Patients made it clear that in hospital their opinion was often not sought. Andrea mentioned the strict hospital environment that had a set routine in place ("rules") that inhibited patient choice. She felt that she was not entitled to choice but in the community the 'rules' were more lax and she could participate freely; *"In hospital you have to keep to the rules….I don't quite feel I am able to contribute to decisions…the surroundings are different to here".*

Patients accepting the responsibility to be involved in decision-making

During the interviews it appeared that Hayley, Jackie and George were very keen to take control of their health and make decisions accordingly. ; *"It is up to me…I will have to work at this"* (Hayley). "*It is up to me now"* (Jackie). Taking ownership of their health and goal-setting appeared to be a strong facilitator to SDM. In contrast, Sophie would rather let staff make these decisions for her and avoided responsibility. *"I could not answer…after all she is the expert and she should be telling me".*

Theme 4 "Preparation for the SDM process"

This theme emphasises the importance of staff-patient communication regarding the sharing of information about the rehabilitation process and goal-setting itself at the beginning of each meeting. Strategies such as agenda setting and the use of decision support such as family involvement were also suggested.

Providing information about rehabilitation options

Sophie, Hayley, Brenda, Jackie, Victoria and Mandy reported that they were not given enough information about rehabilitation options (e.g. exercises, practising domestic and personal care tasks, TENs machine, functional exercises). This, patients felt, negatively affected their ability to set goals. If they knew what rehabilitation options were available, they might be able to see how and what they could achieve. Sophie reported; *"this is the reason why I came here…to get more therapy and rehab…but they did not discuss these options. The staff have not explained to me what rehab options are available"*.

Hayley had a positive goal-setting experience and recalled that by staff explaining the rehabilitation options she was facilitated to participate; *“the goal-setting meeting yesterday was a lot better compared to in hospital. At least I knew what was going on and how they are going to help me”*.

Explanation of goal-setting

Mandy and Brenda felt that staff could have done a better introduction to the meeting. Things they wanted included in this introduction were an explanation of the word ‘goal’, what the meeting would entail and the patient’s role in the meeting. Victoria also wanted further explanations about goals during the meeting. She had a long-term goal in her mind but wanted the staff to explain how she could break this down into smaller goals. She describes that her family helped her by asking “*what steps do I need to achieve to enable me to go home living independently”.*

Decision support

The main decision support described was agenda-setting where patients discuss their worries, wishes, requests and/or goals. Sophie used a form of agenda-setting in the CRC that supported her decisions on goals; *“I wrote a list beforehand of what I wanted to talk about in the meeting and my ideas on my goals”* (Sophie). She had recently had a stroke and found lists helpful in all areas of her life to prompt her memory. This strategy can be used by any patient to help them to remember what they want to say in the meeting and make it easier for them to contribute if staff see them with a list.

DISCUSSION

The current research identified a good level of utilisation of SDM perceived by patients and staff in this setting compared to hospital and general practitioner settings identified in a review by Couet et al [22]. The key differences appeared to be that the intermediate care teams actively sought the patients' preferences and tried to involve them in goal-setting, as well as staff checking with the patient during the meeting that they had understood them. Contrarily hospital and GP practices did not employ SDM effectively potentially due to the short consultation times (average thirteen minutes). They found that with lengthier consultations more SDM competencies were observed [22].

In this study all staff had received SDM training, which may be a reason for the high compliance in SDM competencies adopted. Previous studies [23, 24, 25] have found that teaching healthcare professionals about SDM can lead to improved staff communication skills, improved staff decision coaching skills, an increase in patients taking an active role in decision-making and improved perceptions of SDM by patients [22]. It has been suggested that SDM could be introduced to students at undergraduate level as well as the benefits of patient participation in goal-setting [26] These studies, along with the current research, highlight the importance of all staff having a basic understanding of SDM before they engage in goal-setting with patients.

Another reason for the different findings between hospital and intermediate care settings may be down to environmental factors. Patients in this study described a

strict hospital environment with a set routine that inhibited patient choice, compared to the more relaxed intermediate care setting with a more flexible routine. Other studies have discussed different environmental factors that inhibit SDM, including too much noise [27, 28] presence of a severely ill patient on the ward [27, 28] uncomfortable room temperature [28] and lack of privacy [19]. These factors can be more easily controlled in the community i.e. in a private room or in their own homes which may be why patients were able to engage in decision-making more easily in the current study. If staff can provide a quiet, private room for goal-setting to take place patients should find it easier to engage in decision-making on a ward.

Perceptual differences between staff and patients

The current study identified differences in the level of SDM reported by healthcare professionals and patients. Maitria and Erway [13] found similar differences with 10 out of 11 occupational therapists reporting they had discussed goals with their patients, however, 13 out of 30 patients could remember their goals. The reasons for this difference may be explained by patients in the current research who explained they had struggled to follow their goal-setting discussions and consequently forgot topics discussed afterwards. However, this can be overcome by preparing patients prior to meeting, having simple discussions and giving patients a copy of their goals [6].

Barriers and facilitators to SDM

A key facilitator to SDM highlighted in this study was for staff to show they are listening to patients. This appears crucial in the success of the meeting because

otherwise the patient may disengage. Kidd et al [29] advised staff to demonstrate good listening skills by paraphrasing and seeking explanation for patient's views. If staff repeated back to patients what they had interpreted, then patients knew they were being understood. Soundy et al [30] expanded on these listening skills to include being sensitive to the patient's emotional needs, taking the patient seriously and making the patient feel respected. By staff using these skills patients are more likely to engage in the SDM and consequently retain what was discussed. As a result, their motivation is likely to improve, including their participation in the rehabilitation process.

One important barrier stressed in this study was patients not being given an explanation of goal-setting or rehabilitation options available. Healthcare professionals should be providing this information because the national stroke guidelines emphasise that patients should be given help to understand the nature and process of goal-setting [31]. The National Service Framework for long-term conditions recommend that patients are given information on the support available (rehabilitation options) so they can take part in setting goals [32]. This is a simple barrier for healthcare professionals to address. They could give these explanations at the beginning of the meeting or provide a patient information booklet prior to the meeting. Scobbie et al [7] provided patients with a booklet that explained goal-setting, the role of the patient and rehabilitation team as well as an agenda-setting tool to help patients start thinking about goals.

Strengths and limitations

This study is unique because few studies have specifically looked at SDM within goal-setting. The questionnaire measures the extent of SDM from all perspectives (staff, patient and observer) simultaneously rather than just the observer. This enabled the measurement of differences in perceptual involvement between staff and patients. A main limitation of the study was its small sample size. In the recruitment phase there were a high number of patients who did not consent to participate, especially over the Christmas season and some patients not wanting to "tell tales". The researcher was not directly involved in recruitment which meant no patients were coerced into participating, but this also affected the recruitment rate. It is possible that if the researcher had been involved, she could have answered any queries on the spot and assured patients that their care would not be affected by their participation thereby improving recruitment rates. Having a larger sample size would have made the results more representative of the frail population.

Practice and research recommendations

The current research and previous studies have shown that teaching healthcare professionals about SDM can improve involvement of patients in decisions about their goals. For example, training could include the theory of SDM followed by workshops where staff practice SDM skills. However, the challenge for the NHS will be due to the current resource restrictions within health spending [33]. Perhaps developing an undergraduate curriculum including SDM and the benefit of patient participation in goal-setting could help enable a culture where SDM is the norm.

This research has shown that most patients want to be involved in the decision-making process if the professional supports them to make that decision (e.g. by providing information about the patient's condition and rehabilitation options). Healthcare professionals should give patients an explanation prior to a goal-setting meeting regarding the process and outline the rehabilitation options, possibly with a patient-friendly booklet. Further research could consider developing a goal-setting aid that prepares patients for goal-setting. Moreover, it is possible that the broader principles from the findings can be applied to wider settings in healthcare such as in a GP practice. Further research needs to be carried out across other healthcare settings and teams to measure the extent of SDM and establish whether perceptual differences are present between staff and patients.

Conclusion

This research found staff to have a good level of SDM competence according to the MAPPIN'SDM questionnaire in this setting. Patients perceptions indicated that staff were less compliant when it came to explaining rehabilitation options to patients and detailing the advantages and disadvantages of rehabilitation. A barrier to participating in goal-setting frequently reported in this study was patients not receiving an explanation of goal-setting or being informed about rehabilitation options. A basic training of SDM appeared to help staff in the current study, which highlights the importance of healthcare professional knowledge. Both rehabilitation teams and the undergraduate rehabilitation curriculum should incorporate SDM to enhance interactions between patients and clinicians. This would help us establish a healthcare culture where SDM is the norm.

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Table 1 patient demographics

Patient Demographics	Frequency (%)
Gender: male (female)	22 (78)
Age Group	
60-69	5
70-79	25
80-89	42
90-99	28
Ethnicity: white British	100
Frailty Syndrome	
Falls	55
Immobility	43
Incontinence	2
Side effect medications	0
Delirium	0
Ethnicity	0
Falls History (past 12 months)	
0	23
1	35
2	25
3	10
4	2
5+	5

Table 2 Percentage adoption of SDM competencies according to the MAPPIN'SDM questionnaire

	1a percentage adoption (%)	1b percentage adoption (%)	2a percentage adoption (%)	2b percentage adoption (%)	3a percentage adoption (%)	3b percentage adoption (%)	4a percentage adoption (%)	4b percentage adoption (%)	5a percentage adoption (%)
Strongly disagree							3**	1**	
Disagree	5	8	8	7	19	37**	73**	67**	19
Agree	49	55	69	66	69	59	20	25	67
Strongly agree	46	37	23	27	12	4	4	7	14

	5b percentage adoption (%)	6a percentage adoption (%)	6b percentage adoption (%)	7a percentage adoption (%)	7b percentage adoption (%)	8a percentage adoption (%)	8b percentage adoption (%)	9a percentage adoption (%)	9b percentage adoption (%)
Strongly disagree									
Disagree	17	1	1	4	4	5	18	7	11
Agree	67	77	77	72	72	62	53	63	67
Strongly agree	16	22	22	24	24	33	29	30	22

** *least adopted competencies*

Aspects of SDM within MAPPIN Questionnaire	Welch significance (p = 0.003) showing differences between three groups	Games Howell (p = 0.003) showing direction of significant difference
1a. Patient's problems discussed	0.002**	Patient-staff (0.001)
1b. Patient understands problems	0.51	
2a. Patient told their opinion important	0.004	
2b. Patient happy their opinion important	0.000**	Patient-observer (0.000) Staff-Observer (0.001)
3a. Rehab options discussed	0.000**	Patient-observer (0.000)
3b. Patient understands rehab options	0.000**	Patient-observer (0.000)
4a. Advantages/disadvantages rehab discussed	0.000**	Patient-observer (0.000)
4b. Patient understands advantages/disadvantages	0.000**	Patient-observer (0.000)
5a. Patient's expectations/fears discussed	0.213	
5b. Expectations/fears taken into account	0.499	
6a. Staff check they understand patient	0.745	
6b. Staff understand patient	0.01	
7a. Language used made sense to patient	0.03	
7b. Patient has opportunity to ask questions	0.000**	Patient-observer (0.000) Staff-Observer (0.000)
8a. Goals decided in meeting	0.000**	Staff-Observer (0.000)
8b. Patient is clear on their goals	0.001**	Staff-Observer (0.001)
9a. Discussion of action plan	0.065	
9b. Patient understands action plan	0.599	

Table 3 Summary of Welch and Games-Howell test results showing significant differences in the responses between the three groups and direction of difference